Catalogue of American Amphibians and Reptiles.

WILSON, LARRY DAVID. 1973. *Masticophis flagellum.*

Masticophis flagellum (Shaw)
Coachwhip snake

Coluber flagellum Shaw, 1802:475. Type locality, "Carolina and Virginia," restricted to Charleston, South Carolina (Schmidt, 1953). Holotype not designated.
Psammophis flagelliformis: Holbrook, 1842:11.
Masticophis flagelliformis: Baird and Girard, 1853:98.
Herpetodryas flagelliformis: Duméril, Bibron, and Duméril, 1854:210.
Bascanium flagelliforme: Cope, 1877:64.
Bascanion flagelliforme: Smith, 1882:636.
Zamenis flagelliformis: Boulenger, 1893:389.
Bascanion flagellum: Stejneger, 1893:596.
Zamenis flagelliforme: Ditmars, 1912:218.
Masticophis flagellum: Ortenburger, 1928:5.

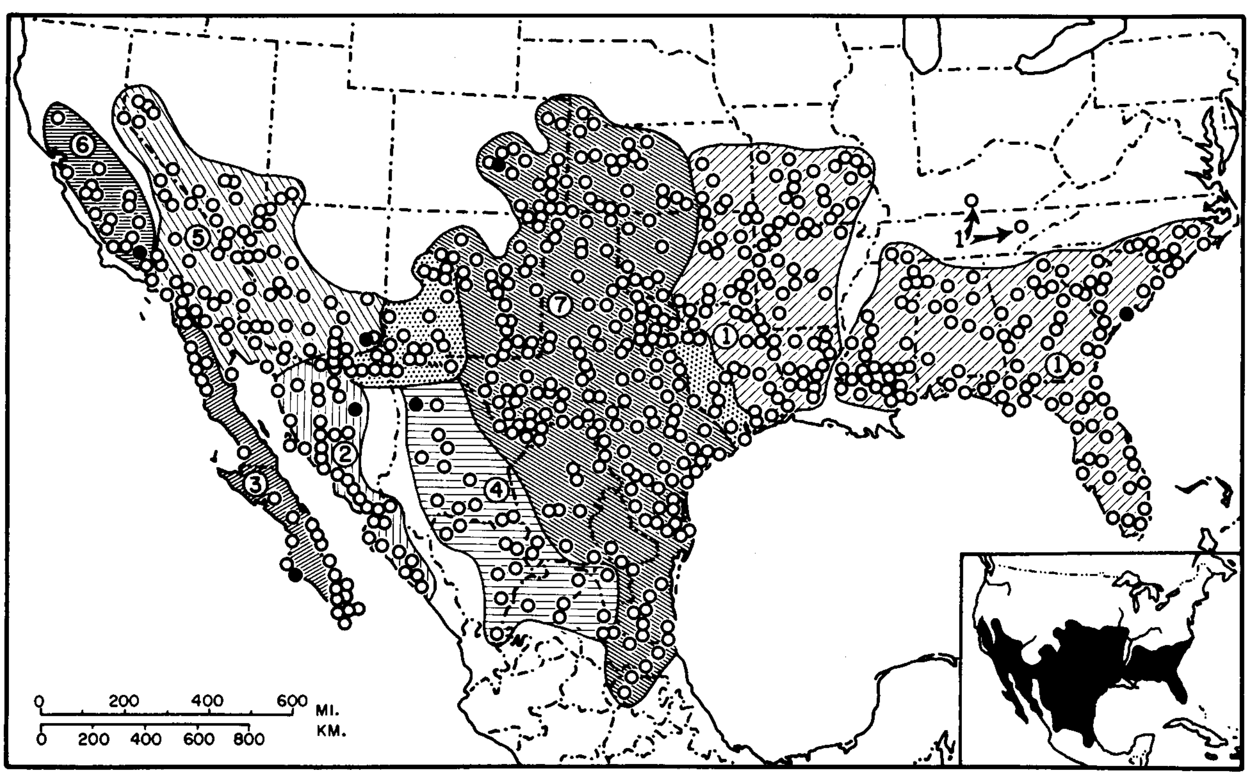
• CONTENT. Seven subspecies are recognized: *cingulum, flagellum, fuliginosus, lineatulus, piceus, ruddocki,* and *testaceus.*

• DEFINITION. *Masticophis flagellum* is a whipsnake with 17 dorsal scale rows on the anterior portion of the body, 8 supralabials, a juvenile dorsal pattern consisting of narrow or wide crossbands on the neck, and a variable adult pattern that never consists of longitudinal pale stripes, irregularly scattered dark lines, or dark spots at the bases of the dorsal scales.

• DESCRIPTIONS. The species *M. flagellum* has been most recently reviewed by Wilson (1970), who described variation in external characters and presented descriptions of certain internal characters. Wilson's (1970) review updated that of Ortenburger (1928). Additional descriptions of the various races are as follows: *M. f. flagellum*—Carr and Goin (1959), Anderson (1965), Smith (1950), Smith (1961), Webb (1970); *M. f. testaceus*—Hudson (1942), Smith (1950), Maslin (1953), Stebbins (1954, 1966), Axtell (1959), Minton (1959), Webb (1970); *M. f. lineatulus*—Smith (1941), Stebbins (1954, 1966), Conant (1965), Fowlie (1965); *M. f. piceus*—Klauber (1942), Stebbins (1954, 1966), Fowlie (1965); *M. f. ruddocki*—Brattstrom and Warren (1953); *M. f. cingulum*—Bogert and Oliver (1945), Lowe and Woodin (1954), Zweifel and Norris (1955), Fowlie (1965); *M. f. fuliginosus*—Schmidt (1922), Linsdale (1932), Cliff (1954), Etheridge (1961). Hemipenial morphology and dentition have been discussed by Ortenburger (1928) and Wilson (1970). Walls (1931) discussed eye structure.

• ILLUSTRATIONS. Photographs and/or drawings of all subspecies are provided by Wilson (1970), and Ortenburger (1928) presented photographs of *M. f. testaceus* and *M. f. piceus* (red and black phases). Conant (1958) depicted *M. f. flagellum* and *M. f. testaceus.* Anderson (1965) and Smith (1950) pictured *M. f. flagellum.* Van Denburgh (1922) illustrated the red and black phases of *M. f. piceus.* Fowlie (1965) presented photographs of *M. f. cingulum* and *M. f. piceus* as well as a *M. f. cingulum* or *M. f. cingulum* × *piceus* intergrade labelled *M. f. "lineatulus."* Stebbins (1966) included a painting of a specimen of *M. flagellum* from Santa Cruz Co., California, which closely resembles the pink phase of *M. f. testaceus.*

• DISTRIBUTION. *Masticophis flagellum* occurs in relatively dry, warm habitats across the southern half of the United States, coast to coast, from North Carolina westward through Kentucky, Tennessee, Missouri, Nebraska, and eastern Colorado, thence southwestward through central and southern New Mexico and southern Arizona. From there the range extends northward through southwestern Utah, south-central Nevada, and southern and central California. In México *M. flagellum* occupies the Mesa Central and both coastal lowlands as far south as northern Veracruz, Queretaro (Dixon, Ketchersid, and Lieb, 1972; Dixon, pers. comm.), southern Durango, and central Sinaloa, as well as the entire peninsula of Baja California. A wide variety of habitats are occupied, including pine and palmetto flatwoods, pine hills, open prairies, oak woodlands, desert scrub, thorn forest, and chaparral.



MAP. Solid symbols mark type-localities; hollow symbols mark other known localities. Major areas of intergradation are shown by stippling.

• FOSSIL RECORD. The known fossil history of *Masticophis flagellum* is limited to the Pleistocene and Recent epochs. The only locality from which the species has been reported as fossil where it is not known to occur presently is Smith Creek Cave, Baker, White Pine County, Nevada (Brattstrom, 1958). Other definite fossil records are as follows: Florida (Holman, 1959; Auffenberg, 1963); Arkansas (Dowling, 1958); Texas (Holman, 1962, 1969); California (Brattstrom, 1953); Nevada (Brattstrom, 1954, 1958); New Mexico (Brattstrom, 1964).

• PERTINENT LITERATURE. The most recent and comprehensive taxonomic work is that of Wilson (1970). Literature on other aspects of the biology of this snake is scattered. Reports on food and feeding habits are included in Van Denburgh (1922), Little and Keller (1937), Marr (1944), Cowles (1946), Curtis (1949), Clark (1949), Woodin (1953), Cliff (1954), Langebartel and Smith (1954), Fouquette and Lindsay (1955), Zweifel and Norris (1955), Gehlbach (1956), Hamilton and Pollack (1956), Gates (1957), Carpenter (1958), Cunningham (1959), Grant and Smith (1959), Blair (1960), Miller and Stebbins (1964), and Walker, Taylor, and Maslin (1966).

Data on reproduction are in Force (1930), Brennan (1934), Marr (1944), Clark (1949), Werler (1951), Perkins (1952), Guidry (1953), Carpenter (1958), Cunningham (1959), and Anderson (1965). Parasites and predators were noted by Ortenburger (1928), Harwood (1933), Loomis (1956), and Peterson (1963). Mosauer (1935) reported on locomotion, Fowlie (1965) on defense and escape, and Wilson (1968) on time of activity. Temperature relationships were studied by Cowles and Bogert (1944), Miller and Stebbins (1964), Brattstrom (1965) and Bogert and Cowles (1947). Other aspects of behavior were noted by Allen (1933), Fowlie (1965), Hallowell (1852), Klauber (1942), Linsdale (1940), Lowe (1964), Miller and Stebbins (1964), Ortenburger (1928), Stebbins (1954), Taylor (1936), Van Denburgh and Slevin (1913), Grinnell and Grinnell (1907), Minton (1959), Lee (1968), Loding (1922), Cowles (1941), Curtis (1949), Leviton and Banta (1964), and Kenney (1941). Information on distribution and habitat is summarized in Wilson (1970).

• REMARKS. Wilson (1970) recognized two groups within the species *M. flagellum*, the *testaceus* group and the *piceus* group.

• ETYMOLOGY. The name *flagellum* is a Latin word meaning "whip" in reference to the whiplike shape of the body and the braided appearance of the scales on the tail.

1. *Masticophis flagellum flagellum* (Shaw)

Coluber flagellum: Shaw, 1802:475. See species account.
Zamenis flagellum flagellum: Cope, 1900:789 (part).
Coluber flagellum flagellum: Stejneger and Barbour, 1917:79 (part).
Masticophis flagellum flagellum: Ortenburger, 1923:2.

• DEFINITION. A subspecies with a dark to very dark brown anterior dorsal coloration grading from tan to dark brown posteriorly, or if dorsum is pale tan (as in certain disjunct populations in Florida and Georgia) then narrow dark crossbands are present on the neck and juvenile markings characteristic of the *flagellum* group are present on the head.

• REMARKS. Wilson (1970) noted that the zone of intergradation between *M. f. flagellum* and *M. f. testaceus* in Oklahoma "is largely conjectural"; Webb (1970) has delineated it. Wilson (1970) pointed out that the range of intergradation is very narrow north of Dallas and Tarrant counties in northern Texas, and Webb (1970) reported that both subspecies have been recorded from several counties in central Oklahoma.

2. *Masticophis flagellum cingulum* Lowe and Woodin

Masticophis flagellum cingulum Lowe and Woodin, 1954:247. Type locality, Moctezuma, Sonora, México, ca. 2000 ft. Holotype, University of Arizona 672, adult male, collected by A. W. Ruff, summer 1951 (examined by author).

• DEFINITION. A subspecies with a highly variable color pattern, the dorsal coloration ranging from a series of long reddish brown bands separated by shorter, paired light bands to uniformly reddish brown or black.

• REMARKS. For some time after the description of this subspecies, specimens from Sonora, México, not conforming to that description were assigned to *M. f. piceus* (Zweifel and Norris, 1955; Stebbins, 1966). Wilson (1970) demonstrated that the range of *M. f. cingulum* encompasses all of Sonora, México, except for the Gran Desierto, as well as south-central Arizona, and that the coloration ranges from a banded pattern to one that is uniformly black or red.

3. *Masticophis flagellum fuliginosus* (Cope)

Zamenis lateralis fuliginosus Cope, 1895:679. Type locality, Santa Margarita Island, Baja California del Sur, México. Syntypes, U. S. Natl. Mus. 15135–15136, adult male and female, respectively, collected by the crew of the U. S. Fish Commission vessel *Albatross*, 2 May 1888 (examined by author).
Bascanion laterale fuliginosum: Van Denburgh, 1905:26.
Masticophis flagellum fuliginosus: Wilson, 1970:63.

• DEFINITION. A subspecies with two color phases, one having a yellow or light gray dorsum with a zig-zag pattern of black bands along the body and wider dark bands on the neck, and the other having a dark grayish brown dorsum with a lineate pattern of varying length on the lateral portion of the dorsum, and a variable amount of cream coloration on the venter.

• REMARKS. This subspecies was resurrected by Wilson (1970) for specimens from the Peninsula of Baja California that had been previously assigned to *M. f. piceus.*

4. *Masticophis flagellum lineatulus* Smith

Masticophis flagellum lineatulus Smith, 1941:394. Type locality, 11 mi N San Buena Ventura, Chihuahua, México. Holotype, U. S. Natl. Mus. 105292, adult female, collected by H. M. Smith, 22 October 1938 (examined by author).

• DEFINITION. A subspecies with a tan or light gray dorsum, each dorsal scale on the anterior portion of the body having a central longitudinal dark streak. The posterior portion of the venter and underside of the tail are salmon pink, this color not fading in preservative.

5. *Masticophis flagellum piceus* (Cope)

Bascanion flagelliforme piceum Cope, 1875:40. Type locality, Camp Grant (= Fort Grant), Graham County, Arizona. Holotype, U. S. Natl. Mus. 7891, skin of adult female (?), collected by E. Palmer, no date (examined by author).
Bascanion flagellum frenatum Stejneger, 1893:208. Type locality, Mountain Spring, Colorado Desert, San Diego County, California. Holotype, U. S. Natl. Mus. 16340, adult female, collected by C. R. Orcutt, June 1890 (examined by author).
Zamenis flagellum piceus: Cope, 1900:804.
Zamenis flagelliformis frenatus: Ditmars, 1907:288.
Zamenis flagelliformis piceus: Ditmars, 1907:288.
Coluber flagellum frenatus: Grinnell and Camp, 1917:190.
Coluber flagellum piceus: Stejneger and Barbour, 1917:79.
Masticophis piceus: Ortenburger, 1923:2.
Masticophis flagellum frenatus: Ortenburger, 1923:2.
Masticophis flagellum frenatum: Klauber, 1926:144.

• DEFINITION. A subspecies with two color phases, one black and the other red. The former is completely black dorsally and salmon pink to red posteroventrally. The other phase is pink to red with crossbands on the neck that range in color from that of the general ground color (in which case the anterior and posterior edges are outlined with darker pigment) to black.

6. *Masticophis flagellum ruddocki* Brattstrom and Warren

Masticophis flagellum ruddocki Brattstrom and Warren, 1953: 177. Type locality, ¼ mi S ridge at Wheeler Ridge and 1½ mi W U. S. Hwy. 99, Kern County, California. Holotype, University of California at Los Angeles 6108 (now in collection of Museum of Vertebrate Zoology), adult male, collected by J. W. Warren, 12 April 1953 (not examined by author).

• DEFINITION. A subspecies with a light yellow to olive yellow dorsum with neck bands obsolete or absent.

7. *Masticophis flagellum testaceus* (Say)

Coluber testaceus Say, 1823:48. Type locality, headwaters of Arkansas River near the Rocky Mountains = junction of Turkey Creek with the Arkansas River, 12 mi W Pueblo, Pueblo County, Colorado. Holotype lost.
Psammophis flavi-gularis Hallowell, 1852:178. Type locality, frontiers of Texas to Creek Territory = Cross Timbers, Oklahoma. Holotype, Acad. Nat. Sci. Philadelphia 5388, sex unknown, collected by S. W. Woodhouse, no date (not examined by author; according to Malnate, 1971, there are 2 syntypes, ANSP 5387–88).
Masticophis flagelliformis testaceus: Jan, 1863:65.
Masticophis flagelliformis testacea: Jan, 1867: livr. 20, pl. 6, fig. 2.
Bascanium flagelliforme testaceus: Yarrow, 1875:542 (part).
Bascanium flagelliforme bicinctum Yarrow, 1883:153. Type locality, Old Fort Cobb, Texas. Holotype, U. S. Natl. Mus. 11814 (not listed by Cochran, 1961).
Coluber flagelliformis testaceus: Garman, 1883:43 (part).
Masticophis flagellum flavigularis: Ortenburger, 1923:2.

• DEFINITION. A subspecies with a light tan or light brown to pinkish-red dorsum, with or without short darker cross-bands on the neck or long crossbands on the anterior portion of the body, and a double row of dark spots on the otherwise cream belly.

COMMENT

The status of the populations of *Masticophis flagellum* in northern Sinaloa remains uncertain. Hardy and McDiarmid (1969) allocated them to *M. f. piceus*, although noting that they are not typical of *piceus* in coloration. Wilson (1970), on the other hand, assigned specimens of *M. flagellum* from Sonora, México (except the Gran Desierto and the mountainous eastern portion) to *M. f. cingulum* and left the populations in northern Sinaloa *incertae sedis*. This problem is in need of resolution.

The area of intergradation between *M. f. piceus* and *M. f. ruddocki* is in need of further study, as is that between *M. f. piceus* and *M. f. fuliginosus* in San Diego County, California.

The ecology of this species is poorly known. No work comparable to that of Fitch (1963) for *Coluber constrictor* is available for the coachwhip, even though it is relatively common in many parts of its range.

LITERATURE CITED

Anderson, Paul. 1965. The reptiles of Missouri. Univ. Missouri Press, Columbia. xxiii + 330 p., 169 figs.
Auffenberg, Walter. 1963. The fossil snakes of Florida. Tulane Stud. Zool., 10(3):131–216.
Axtell, Ralph W. 1959. Amphibians and reptiles of the Black Gap Wildlife Management Area, Brewster County, Texas. Southwest. Nat., 4(2):88–109.
Baird, Spencer F., and Charles Girard. 1853. Catalogue of North American reptiles in the Museum of the Smithsonian Institution, Part I. Serpents. Smithsonian Misc. Coll. 2(5):1–172.
Blair, W. Frank. 1960. The rusty lizard: A population study. Univ. Texas Press, Austin. xiv + 185 p., 31 figs., 35 tabs.
Bogert, Charles N., and Raymond B. Cowles. 1947. Moisture loss in relation to habitat selection in some Floridian reptiles. Amer. Mus. Novitates (1358):1–34.
—, and James A. Oliver. 1945. A preliminary analysis of the herpetofauna of Sonora. Bull. Amer. Mus. Nat. Hist. 83(6):297–426.
Boulenger, G. A. 1893. Catalogue of the snakes in the British Museum (Natural History). Taylor and Francis, London. xiii + 448 p., 28 pls.
Brattstrom, Bayard H. 1953. The amphibians and reptiles from Rancho La Brea. Trans. San Diego Soc. Nat. Hist. 11(14):365–392.
— 1954. Amphibians and reptiles from Gypsum Cave, Nevada. Bull. So. California Acad. Sci. 53(1):8–12.
— 1958. Additions to the Pleistocene herpetofauna of Nevada. Herpetologica 14(1):36.
— 1964. Amphibians and reptiles from cave deposits in south-central New Mexico. Bull. So. California Acad. Sci. 63(2):93–103.
— 1965. Body temperatures of reptiles. Amer. Midl. Nat. 73(3):376–422.
—, and James W. Warren. 1953. A new subspecies of racer, *Masticophis flagellum*, from the San Joaquin Valley of California. Herpetologica 9(4):177–179.
Brennan, L. A. 1934. A check list of the amphibians and reptiles of Ellis County, Kansas. Trans. Kansas Acad. Sci. 37:189–191.
Carpenter, Charles C. 1958. Reproduction, young, eggs and food of Oklahoma snakes. Herpetologica 14:113–115.
Carr, Archie F., Jr., and Coleman J. Goin. 1955. Guide to the reptiles, amphibians and fresh-water fishes of Florida. Univ. Florida Press, Gainesville. vii + 341 p.
Clark, R. F. 1949. Snakes of the hill parishes of Louisiana. J. Tennessee Acad. Sci. 24(4):244–261.
Cliff, Frank S. 1954. Snakes of the islands in the Gulf of California, Mexico. Trans. San Diego Soc. Nat. Hist. 12(5):67–98.
Cochran, Doris M. 1961. Type specimens of reptiles and amphibians in the United States National Museum. U. S. Natl. Mus. Bull. (220):1–291.
Conant, Roger. 1958. A field guide to reptiles and amphibians of the United States and Canada east of the 100th meridian. Houghton Mifflin Co., Boston. xviii + 366 p.
Cope, Edward D. 1877. On some of the new and little known reptiles and fishes from the Austroriparian Region. Proc. Amer. Philos. Soc. 17:63–68.
— 1895. On some new North American snakes. Amer. Nat. 29:676–680.
Cowles, Raymond B. 1941. Observations on the winter activities of desert reptiles. Ecology 22:125–140.
— 1946. Carrion-eating by a snake. Herpetologica 3(4): 121–122.
— and Charles M. Bogert. 1944. A preliminary study of the thermal requirements of desert reptiles. Bull. Amer. Mus. Nat. Hist. 83(5):261–296.
Cunningham, John D. 1959. Reproduction and food of some California snakes. Herpetologica 15(1):17–19.
Curtis, Lawrence. 1949. The snakes of Dallas County, Texas. Field and Lab. 17(1):5–13.
Ditmars, Raymond L. 1907. The reptile book. Doubleday, Page and Co., New York. 472 p.
— 1912. The feeding habits of serpents. Zoologica 1:197–238.
Dixon, James R., Chesley A. Ketchersid, and Carl S. Lieb. 1972. The herpetofauna of Queretaro, Mexico, with remarks on taxonomic problems. Southwest. Nat. 16(3 & 4): 225–237.
Dowling, Herndon G. 1958. Pleistocene snakes of the Ozark Plateau. Amer. Mus. Novitates (1882):1–9.
Duméril, A. M. C., G. Bibron, and A. H. A. Duméril. 1854. Erpetologie générale ou histoire naturelle des reptiles. Vol. 7. Roret, Paris. 1536 p.
Etheridge, Richard. 1961. Additions to the herpetological fauna of Isla Cerralvo in the Gulf of California, Mexico. Herpetologica 17(1):57–60.
Fitch, Henry S. 1963. Natural history of the racer *Coluber constrictor*. Univ. Kansas Publ. Mus. Nat. Hist. 15(8): 351–468.
Fouquette, M. J., and H. L. Lindsay. 1955. An ecological survey of reptiles in parts of northern Texas. Texas J. Sci. 7(4):402–421.
Fowlie, Jack A. 1965. The snakes of Arizona. Azul Quinta Press, Fallbrook, California. lv + 164 p.
Gates, Gerald O. 1957. A study of the herpetofauna in the vicinity of Wickenberg, Maricopa County, Arizona. Trans. Kansas Acad. Sci. 60:403–418.
Gehlbach, Frederick R. 1956. Annotated records of southwestern amphibians and reptiles. Trans. Kansas Acad. Sci. 59:364–372.
Grant, Chapman, and Hobart M. Smith. 1959. Herptiles from San Luis Potosi, Mexico. Herpetologica 15(1):54–56.
Grinnell, Joseph and Hilda Grinnell. 1907. Reptiles of Los Angeles County, California. Throop Polytech. Inst. Bull. (35):1–64.
Guidry, Ed. V. 1953. Herpetological notes from southeastern Texas. Herpetologica 9(1):49–56.
Hallowell, Edward. 1852. Descriptions of new species of reptiles inhabiting North America. Proc. Acad. Nat. Sci. Philadelphia 6:177–184.
Hamilton, W. J., Jr., and Joseph A. Pollack. 1956. The food

of some colubrid snakes from Fort Benning, Georgia. Ecology 37(3):519–526.

Hardy, Laurence M., and Roy W. McDiarmid. 1969. The amphibians and reptiles of Sinaloa, México. Univ. Kansas Publ. Mus. Nat. Hist. 18(3):39–252.

Harwood, Paul D. 1933. The helminths parasitic in the Amphibia and Reptilia of Houston, Texas, and vicinity. Proc. U. S. Natl. Mus. 81:1–71.

Holbrook, John E. 1842. North American herpetology. Vol. 3. J. Dobson, Philadelphia. 128 p.

Holman, J. Alan. 1959. Amphibians and reptiles from the Pleistocene (Illinoian) of Williston, Florida. Copeia 1959(2):96–102.

— 1962. A Texas Pleistocene herpetofauna. Copeia 1962(2): 255–261.

— 1969. The Pleistocene amphibians and reptiles of Texas. Publ. Mus. Michigan State Univ., Biol. Ser. 4(5):161–192.

Hudson, George E. 1942. The amphibians and reptiles of Nebraska. Nebraska Conserv. Bull. (24):1–146.

Jan, Georges and Ferdinand Sordelli. 1866–1870. Iconographie générale des ophidiens. Milan. Second Tome. Livr. 18–34.

Klauber, Laurence M. 1926. The snakes of San Diego County, California. Specimens collected for the Zoological Society Jan. 1, 1923 to Dec. 31, 1925 showing distribution by months and zones. Copeia (155):144.

— 1942. The status of the black whip snake. Copeia 1942 (2):88–97.

Langebartel, Dave A., and Hobart M. Smith. 1954. Summary of the Norris collection of reptiles and amphibians from Sonora, Mexico. Herpetologica 10(2):125–136.

Lee, David S. 1968. Herpetofauna associated with central Florida mammals. Herpetologica 24(1):83–84.

Leviton, Alan E., and Benjamin H. Banta. 1964. Midwinter reconnaissance of the herpetofauna of the Cape Region of Baja California, Mexico. Proc. California Acad. Sci. ser. 4, 30(7):127–156.

Linsdale, Jean M. 1940. Amphibians and reptiles in Nevada. Proc. Amer. Acad. Arts and Sci. 73(8):197–257.

Little, Elbert L., Jr., and John G. Keller. 1937. Amphibians and reptiles of the Jornada Experimental Range, New Mexico. Copeia 1937(4):216–222.

Löding, H. P. 1922. A preliminary catalogue of Alabama amphibians and reptiles. Alabama Mus. Nat. Hist. Mus. Pap. (5):26–40.

Loomis, Richard B. 1956. The chigger mites of Kansas (Acarina, Trombiculidae). Univ. Kansas Sci. Bull. 37: 1195–1443.

Lowe, Charles H. (ed.). 1964. The vertebrates of Arizona. Univ. Arizona Press, Tucson. vii + 259 p.

— and William H. Woodin, III. 1954. A new racer (genus *Masticophis*) from Arizona and Sonora, Mexico. Proc. Biol. Soc. Washington 67:247–250.

Malnate, Edmond V. 1971. A catalog of primary types in the herpetological collections of the Academy of Natural Sciences, Philadelphia (ANSP). Proc. Acad. Nat. Sci. Philadelphia 123(9):345–375.

Marr, J. C. 1944. Notes on amphibians and reptiles from the central United States. Amer. Midl. Nat. 32:478–490.

Maslin, T. Paul. 1953. The status of the whip snake *Masticophis flagellum* (Shaw) in Colorado. Herpetologica 9(4):193–200.

Miller, Alden H., and Robert C. Stebbins. 1964. The lives of desert animals in Joshua Tree National Monument. Univ. California Press, Berkeley and Los Angeles. vi + 452 p.

Minton, Sherman A., Jr. 1959. Observations on amphibians and reptiles of the Big Bend region of Texas. Southwest. Nat. 3:28–54.

Mosauer, Walter. 1935. How fast can snakes travel? Copeia 1935(1):6–9.

Ortenburger, Arthur Irving. 1923. A note on the genera *Coluber* and *Masticophis* and a description of a new species of *Masticophis*. Occ. Pap. Mus. Zool. Univ. Michigan (139):1–14.

— 1928. The whip snakes and racers: genera *Masticophis* and *Coluber*. Mem. Univ. Michigan Mus. 1:1–247, 64 figs., 36 pls.

Peterson, Roger Tory. 1963. The birds. Time Inc., New York. 192 p.

Say, Thomas. 1823. *In* Edwin James, Account of an expedition from Pittsburgh to the Rocky Mountains, performed in the years 1819, 1820. H. C. Peary and I. Lea, Philadelphia. 442 p.

Schmidt, Karl P. 1922. Scientific results of the expedition to the Gulf of California in charge of C. H. Townsend, by the U. S. Fisheries steamship "Albatross" in 1911. VII. The amphibians and reptiles of Lower California and the neighboring islands. Bull. Amer. Mus. Nat. Hist. 46(11):607–707.

— 1953. A check list of North American amphibians and reptiles. 6th ed. Amer. Soc. Ichthyologists and Herpetologists. viii + 280 p.

Shaw, George. 1802. General zoology or systematic natural history. Vol. 3, Pt. 2. London. 615 p.

Smith, Hobart M. 1941. Notes on Mexican snakes of the genus *Masticophis*. J. Washington Acad. Sci. 31(9):388–398.

— 1950. Handbook of amphibians and reptiles of Kansas. Second edition. Misc. Publ. Mus. Nat. Hist. Univ. Kansas (2):1–336.

Smith, Philip W. 1961. The amphibians and reptiles of Illinois. Illinois Nat. Hist. Surv. Bull. (28):1–298.

Smith, W. H. 1882. Report on the reptiles and amphibians of Ohio. Geol. Surv. Ohio 4:633–734.

Stebbins, Robert C. 1954. Amphibians and reptiles of western North America. McGraw-Hill Book Co., New York. xxii + 528 p.

— 1966. A field guide to western reptiles and amphibians. Houghton Mifflin Co., Boston. xiv + 279 p.

Strecker, John K. 1915. Reptiles and amphibians of Texas. Baylor Bull. 18(4):1–82.

Tanner, Vasco M. 1927. Distributional list of the amphibians and reptiles of Utah. Copeia (163):54–58.

Taylor, Edward H. 1936. Notes on the herpetological fauna of the Mexican state of Sonora. Univ. Kansas Sci. Bull. 24(19):475–503.

Van Denburgh, John. 1905. Reptiles and amphibians of the islands of the Pacific coast of North America from Farallons to Cape St. Lucas. Proc. Acad. Nat. Sci. Philadelphia 57: 63–66.

— 1922. The reptiles of western North America. Occ. Pap. California Acad. Sci. Vol. 2. Snakes and lizards: 617–1028.

— and Joseph R. Slevin. 1913. A list of the amphibians and reptiles of Arizona with notes on the species in the collection of the Academy. Proc. California Acad. Sci. ser. 4, 3:391–454.

Walker, J. Martin, Harry L. Taylor, and T. Paul Maslin. 1966. Morphology and relations of the teiid lizard, *Cnemidophorus ceralbensis*. Copeia 1966(3):585–588.

Walls, Gordon, L. 1931. The occurrence of colored lenses in the eyes of snakes and squirrels, and their probable significance. Copeia 1931(3):125–127.

Webb, Robert G. 1970. Reptiles of Oklahoma. Publ. Stovall Mus., Univ. Oklahoma Press, Norman. xi + 370 p., 120 figs.

Werler, John E. 1951. Miscellaneous notes on the eggs and young of Texan and Mexican reptiles. Zoologica 36:37–48.

Wilson, Larry David. 1968. The coachwhip snake, *Masticophis flagellum* (Shaw): Taxonomy and distribution. Ph.D. Dissert. Louisiana State Univ., Baton Rouge. 226 p.

— 1970. The coachwhip snake, *Masticophis flagellum* (Shaw): Taxonomy and distribution. Tulane Stud. Zool. Bot. 16(2):31–99.

Woodin, William H. 1953. Notes on some reptiles from the Huachuca area of southeastern Arizona. Bull. Chicago Acad. Sci. 9(5):285–296.

Yarrow, H. C. 1882. Check list of North American Reptilia and Batrachia, with catalogue of specimens in U. S. National Museum. U. S. Natl. Mus. Bull. (24):1–249.

Zweifel, Richard G., and Kenneth S. Norris. 1955. Contributions to the herpetology of Sonora, Mexico: descriptions of new subspecies of snakes (*Micruroides euryxanthus* and *Lampropeltis getulus*) and miscellaneous collecting notes. Amer. Midl. Nat. 54:230–249.

L. D. Wilson, Miami-Dade Junior College, Miami, Florida 33156

Primary editor for this account, Douglas A. Rossman.

Published 25 October 1973 by the Society for the Study of Amphibians and Reptiles.